

Title: Inter-organisational technology transfer and its impact on the sustainability performance of the recipient firm

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Abstract

This study presents a comprehensive exploration of how a company's sustainability performance may be influenced by newly acquired technology and knowledge from a supplier firm. We take into account the level of institutionalisation and compatibility between the two companies, which can moderate this impact. To measure sustainability performance, the study uses the triple bottom line (TBL) approach, which considers a company's economic, social, and environmental performance. The research employs a mixed-method and survey-based methodology, focusing on companies from developed and emerging markets. This study aims to provide valuable insights into the relationship between technology adoption and a company's sustainability performance, aiding the companies in making informed decisions about their investment strategy.

Word Count: 1511

Research background

Improving a company's sustainability performance has become crucial in today's business landscape. It enhances operational efficiency and gives a competitive edge, especially given the evolving global trends and international policies to guide and support organisations towards more sustainable operations (Buckley et al., 2017; George et al., 2022; Hristov & Chirico, 2019; Montiel et al., 2021). This study explores the impact of inter-organisational technology transfer (ITT) on the sustainability performance of the recipient firm. One effective way to assess a firm's sustainability performance is by analysing its economic, environmental, and social performance, also known as the triple bottom line (TBL) (Elkington, 1997). This approach is widely recognised as a comprehensive and effective tool for evaluating a company's sustainability performance, as it is aimed at a broad range of stakeholders (Chenhall & Langfield-Smith, 2007; Khan et al., 2021). This study suggests that ITT between a supplier and recipient firms, facilitated through various technology and knowledge transfer channels, can help improve the recipient firm's TBL performance.

Technology transfer can be defined as “an active process during which the technology (and knowledge related to it) is transferred between two distinct entities” (Battistella et al., 2016, p. 1196). Previous research has argued that the technology transfer process involves an active engagement between two commercial entities, and it is generally considered a one-way course of action, with the recipient firm being the beneficiary of the new technology and knowledge (Autio & Laamanen, 1995). This process is facilitated by many forms of technology transfer, including formal channels – licensing agreements, joint ventures, research collaborations, and consulting services, as well as informal channels of technology transfer such as interpersonal relations, partnerships, and informal networks, rather than formal agreements or contacts (Adomako & Nguyen, 2023; Battistella et al., 2016; Buratti & Penco, 2001). Wang and Blomstrom (1992) and Findlay (1978) argue that competitive interactions between firms evolve with economic development. They posit that significant technology gaps allow recipient firms to gain substantial knowledge spillovers, as there is a great deal to learn from more advanced firms. Hence, this study aims to investigate to what extent the technology transfer process can contribute to the sustainable development of a company's processes, enabling firms to acquire and employ new technology effectively. Through technology, knowledge, and managerial know-how transfer, the recipient firm may learn from the supplier firm and optimise its production processes, making it more sustainable (Fazal et al., 2023; Palvia et al., 2002). This study focuses on the *inbound ITT* by examining the technology transfer process from the perspective of the technology-receiving organisation or recipient firm. The objective is to analyse factors that influence inbound ITT satisfaction, ultimately leading to improvements in the sustainability performance of the recipient company.

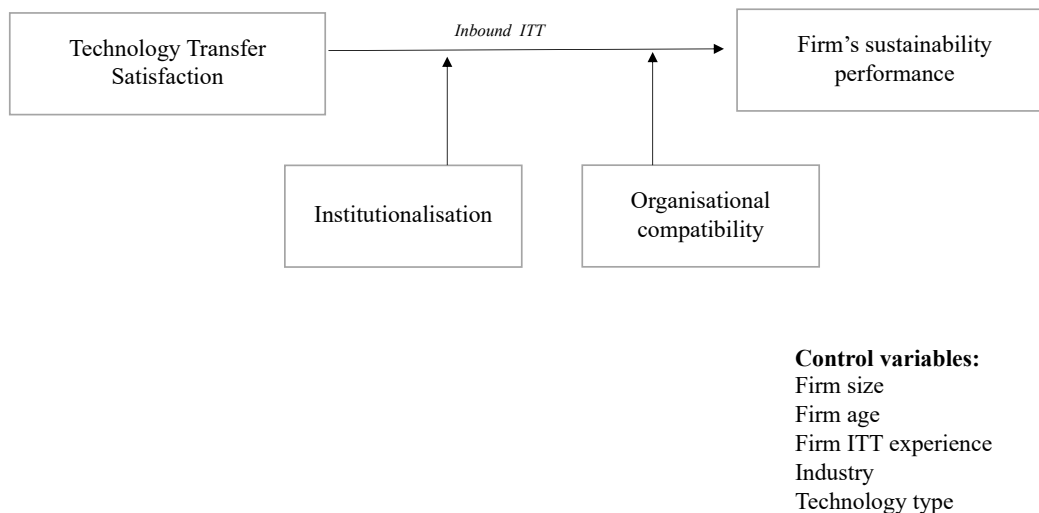
ITT is crucial in driving innovation and competitiveness in today's globalised economy. However, various contextual factors can influence the impact of technology transfer satisfaction on recipient firm sustainability performance (Leonard-Barton & Sinha, 1993). This research aims to explore the moderating effects of institutionalisation and organisational compatibility on the relationship between technology transfer satisfaction and recipient firm sustainability performance, focusing on the mediating role of type of technology (i.e., digital, AI, green technology, etc.). We posit that our approach to evaluating inter-organisational technology transfer satisfaction levels can offer a

valuable contribution to existing research in the field, particularly regarding its effect on the firm's sustainability performance. By accounting for contextual nuances and tailoring our analyses to specific organisational contexts (organisational compatibility) and the nature of collaboration (institutionalisation level), we hope to generate relevant insights applicable to managerial decision-makers. Ultimately, our goal is to foster a better understanding of the technology transfer process and to promote a more effective and efficient inter-organisational technology transfer process. This leads us to answer the following research questions: *How does adopting newly acquired technology and knowledge influence a company's sustainability performance? To what extent does institutionalisation moderate the relationship between technology adoption and a company's sustainability performance? How does the compatibility between partner companies moderate the impact of newly acquired technology and knowledge on the company's sustainability performance?*

Conceptual framework

Figure 1 illustrates the research framework. The proposed research model consists of the following five variables: a five-item construct measures technology transfer satisfaction; a three-item construct measures organisational compatibility; a two-item construct measures ITT institutionalisation; and a five-item construct gauges the firm's sustainable performance. Control variables are firm age, firm size, industry, technology type, and firm ITT experience.

Figure 1. Conceptual Framework



Source: authors' own elaboration

Technology Transfer Satisfaction

Scholars have explored and analysed the elements of the source's and recipient's firm absorptive and descriptive capacity that lead to successful technology transfer (Lichtenthaler & Lichtenthaler, 2010). Bucklin and Sengupta (1993) claim that to achieve technology transfer success, both parties

involved in the process must feel that it is productive and valuable. This idea highlights the significance of mutual benefits for all involved, aligning with the ideas of successful partnerships and the perceived efficacy of collaborative efforts between firms. However, after conducting a literature review, we concluded that the typical measure of technology transfer success is centred around the satisfaction rate of the technology transfer (Bucklin & Sengupta, 1993; Leischnig et al., 2014). We assert that evaluating satisfaction levels can provide critical insights into how organisations perceive the effectiveness, efficiency, productivity, trustworthiness, and overall quality of the technology transfer process.

Hypothesis 1: Technology transfer satisfaction positively impacts the recipient firm's sustainability performance.

TT Institutionalisation

Collaborations between firms can take various forms, ranging from informal to highly structured, with a high degree of formalisation. A relationship is considered institutionalised if it is defined in terms of objectives, location, and timing or if it requires extensive negotiations and numerous approvals (Bonaccorsi & Piccaluga, 1994; Van Dierdonck & Debackere, 1988). In this study, we suggest that the level of systematisation, planning, and organisation is the primary factor determining the institutionalisation of a cooperative relationship between partner companies. This factor is influenced by the extent of rules, policies, and procedures that regulate the relationship and are shared by the partners, as well as the complexity of arrangements, legal issues, and administrative procedures involved. As the number of these factors increases, the level of institutionalisation of cooperative relationships also increases (Bonaccorsi & Piccaluga, 1994; Ranson et al., 1980). Through our review of the literature, we have discovered that studies have found a direct correlation between technology transfer success and the level of institutionalisation within the relationship. In particular, the literature suggests that a well-planned, organised, and institutionalised cooperative agreement will result in a more successful technological transfer process (Adomako & Nguyen, 2023; Geisler, 1997; Geisler & Turchetti, 2015).

Hypothesis 2: A higher degree of institutionalisation positively moderates the relationship between technology transfer satisfaction and the recipient firm's sustainability performance.

Organisational compatibility

Organisational compatibility is a concept that refers to the degree of similarity in the goals, objectives, and business philosophies of transfer partners (Bucklin & Sengupta, 1993). This notion is fundamental in understanding the dynamics of inter-organisational collaborations, particularly in the context of strategic alliances, M&As and technology transfer (Leischnig et al., 2014; Mitsuhashi & Greve, 2009). We argue that a high level of compatibility between firms can facilitate mutual benefits, including improved sustainability performance, increased efficiency, reduced costs, and access to new markets. Therefore, assessing organisational compatibility is crucial when evaluating the potential success of inter-organisational technology transfer.

Hypothesis 3: A higher degree of organisational compatibility positively moderates the relationship between technology transfer satisfaction and the recipient firm's sustainability performance.

Sustainability performance

In this paper, the inbound ITT process is viewed as a tool for transferring sustainable technologies through different mechanisms (Corsi et al., 2020). We investigate how technology transfer satisfaction improves recipient firm sustainability performance. To measure a firm's sustainability performance, we employ the triple bottom line approach by analysing the firm's economic, social and environmental performance.

Study design

We are currently collecting data from multinational enterprises (MNEs) in developed and emerging countries. To achieve this, we employ various methods to reach potential respondents. Firstly, we utilised the contact data available through D&B Hoovers and sent survey invitations to managers in companies across the UK and Europe. Secondly, we leveraged personal networks and snowball sampling to reach potential respondents in emerging markets. Thirdly, we connected with respondents on social media platforms such as LinkedIn and Facebook to increase the number of responses. These diverse approaches ensure a comprehensive data collection, enhancing the reliability and validity of our research findings. Moving forward, we plan to integrate additional methods, such as industry conferences and professional associations, to expand our respondent base further. This multi-faceted approach aims to capture a broad spectrum of insights from various regions and industries, thereby enriching the overall quality of our study. The data will be analysed later using SPSS.

Further steps on paper development

To further develop this paper, we will expand the literature review to include additional information on the research background and gain deeper insights into the variables to be analysed in the study and the theoretical framework. We plan to collect responses by the end of September 2024, after which we will commence data analysis and writing.

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